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ABSTRACT

This study investigated the effects of four factors (threat, surveillance, sex of child and time) on obedience of children to adult requests. An adult told the subjects (48 4-year-old boys and girls) to carry marbles from one box to another. The adult either made no threat or threatened the child for possible disobedience, and either stayed in the room or left the room during the session. Four measures of obedience were recorded for five consecutive 2-minute periods. Results showed in general that: (1) the children were very obedient; (2) threat increased obedience in girls, but not in boys; (3) surveillance increased the amount of time the children worked at the task; (4) obedience decreased with the passage of time; and (5) 94% of the children indicated that the experiment was fun, but 33% indicated that they would not like to do it again. These findings are compared with previous research findings on obedience, resistance to temptation and social reinforcement. (Author/MS)

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Factors Affecting Obedience in Preschool Children

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Carlsmith, Lepper, and Landauer (1974) have noted that although compliance by children to the requests of adults seems to be an important part of the socialization process, the conditions which affect children's obedience to adult requests have not received much experimental attention. They found that in a relaxed setting preschool children obeyed a previously positive adult more than a previously negative adult; whereas in an anxiety-provoking setting the children obeyed a previously negative adult more.

The purpose of the present study is to investigate some other factors which may affect young children's obedience to adult requests. The factors of interest are threat, surveillance, sex of child, and time.

The effects of threat on young children have been studied in two lines of research, forbidden-toy research and resistance-to-temptation research. The results of the forbidden-toy research suggest that mild threat may be more effective than severe threat in getting a child to devalue the forbidden toy (e.g., Aronson & Carlsmith, 1963; Dembroski & Pennebaker, 1975, Lepper, Zanna, & Abelson, 1970; Pepitone, McCauley, & Hammond, 1967). However, the mild threat must be at least severe enough to elicit compliance; thus, the results shed no light on how severe the threat must be to elicit such compliance in the first place. Research on resistance to temptation has found threat of punishment to be effective in preventing preschool children from touching attractive objects (cf., Jensen & Buhanan, 1974; Jensen & Hughston, 1973). However, resistance-to-temptation research is concerned with the obedience of the child in not doing something rather than in doing something.

A second factor that is of interest in this study is surveillance--whether the adult stays in the room with the child or leaves the room after making the request. Meddock, Parsons, & Hill (1971) found that preschool children responded faster when an adult was present than when the adult was absent, but the absent adult stayed behind a screen in the same room

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rather than leaving the room completely. Leventhal and Fischer (1970) obtained similar results when the absent adult was busying himself with another task in a corner of the room.

Biaggio & Rodrigues (1971) noted that for Brazilian second-grade children, with a mild threat, high probability of detection resulted in slightly more compliance than low probability of detection. In their study the adult did not actually stay in the room; probability of detection was manipulated by telling the child either that the adult would be back in a few minutes (high) or that the child could leave when a bell on a timer rang (low).

Herbert Kelman's (1958, 1961) well-known model of social influence has some implications for the effects of surveillance on obedience. Kelman suggested that there are three processes of social influence: compliance, identification, and internalization. Kelman suggested that in compliance the person will obey only under conditions of surveillance by the influencing agent. These conditions are met either if the agent is physically present, or if he is likely to find out about the individual's actions. Similarly, in discussing the forbidden-toy research, Aronson (1966) suggested that severe threats should be more effective than mild threats in obtaining compliance by the child only "at that time, while you are standing there watching him" (p. 111).

Compliance is the kind of influence that is of interest in the present study. The child is requested to do something that is not particularly enjoyable, and no reason is given for doing it. The considerations discussed above suggest not only that surveillance may affect children's obedience to an adult's request, but also that we might expect an interaction between the effects of threat and surveillance: Surveillance should make more of a difference in the child's obedience when the adult's request is accompanied by a threat than when it is not.

The third experimental variable of interest in this study is time. Research on social reinforcement indicates that there is a gradual increase in response rate over time even without reinforcement (Parton & Ross, 1965). In studies of the obedience of preschool children to an adult's request, the child's obedience was observed for six-minute periods (Carlsmith et. al., 1974; Landauer, Carlsmith, & Lepper, 1970). Obedience was recorded only for the total time. Would there be any changes in obedience during this time period, or would the level of obedience be constant throughout the period? This question could have been studied by recording the obedience separately for each one-minute or two-minute period, and comparing the obedience over the periods. This approach was taken in the present study to see what effects the passage of time has on children's obedience.

Does the sex of the child affect obedience to an adult request? At least two studies have suggested that it does not (Carlsmith et al., 1974; Landauer et al., 1970). However, although boys and girls may not differ in their obedience, they may differ in how threat, surveillance, and time affect their obedience. Therefore, sex was included as the fourth variable to be investigated.

Some studies of children's compliance with adult requests, particularly in a social-reinforcement situation, have used various marble-dropping games (cf., Lepper, 1970; Kerns, 1975). Other tasks used to study obedience in young children have included picking up assorted blocks scattered among toys on the floor (Landauer et al., 1970), picking up tennis balls scattered among toys on the floor (Carlsmith et al., 1974), and picking up toys one at a time and bringing them to the adult (Resick, Forehand, & Peed, 1974).

There is one possible weakness of the above tasks as measures of pure obedience. They may suggest to the child some inherent reasons for compliance with the adult's request besides the mere fact that the adult asked him to do it. Even though the marble games are designed so that a child will tire of them quickly, they are still presented as games, and do not involve work. Picking up the scattered blocks and tennis balls is more like work; but the child may see the blocks and balls as cluttering the room, so that the request to pick them up is a request to help clean up the room. A task that has no inherent purpose or value may give a more pure measure of the child's obedience--the only reason for complying would be because the adult said to do it. The present study used a marble-carrying task that incorporates these considerations.

Research on demand characteristics (Miller, 1972; Orne, 1962) is relevant at this point. Children, like adults, when given a meaningless task with no inherent interest or apparent purpose, may attempt to infer what the experimenter would like them to do, and then respond to these demand characteristics of the situation. Lepper (1970) suggested that much of the social reinforcement literature can be interpreted in terms of children's compliance with the demands they perceive in the situation. The results of Lepper (1970), Carlsmith et al. (1974), and Landauer et al. (1970), suggest that social reinforcement may convey to the child the experimenter's wishes more than having any cumulative reinforcing effect or incentive value.

It has been suggested that such conscious compliance with implicit adult requests may also be a factor affecting the results of studies of children's imitation (e.g., Masters & Driscoll, 1971), resistance to temptation (e.g., Aronfreed, 1968), and cooperation and competition (Cook & Stingle, 1974).

If these previous studies on social reinforcement and resistance to temptation can be interpreted in terms of compliance, then results of direct studies of children' s obedience to explicit adult requests may be analogous to the results of these previous studies (Carlsmith et al., 1974). Thus, the results of studies such as the present study may be meaningfully compared with results of some of the previous research on social reinforcement and resistance to temptation in young children.

Based upon previous relevant research, the specific hypotheses investigated in this study were as follows: (1) Children will be more obedient to the request of an adult when the request is accompanied by a threat than when it is not accompanied by a threat, (2) Children will be more obedient to the request of an adult when they are under surveillance by the adult than when they are not under surveillance, (3) There will be an interaction between threat and surveillance, such that the effects of threat on obedience will be greater under surveillance than under no-surveillance, and (4) Children will be most obedient immediately following the adult' s request, then their obedience will decrease as time passes.

Method

Subjects

The subjects were 48 preschool children, 24 girls and 24 boys, enrolled in the Brigham Young University Child Development Laboratory (nursery school). They ranged in age from 48 months to 62 months, with a mean age of 55 months. Six boys and six girls participated in each of the four experimental conditions.

A total of 59 children originally participated, but seven girls and four boys did not complete the task--four girls and one boy became upset and cried when left alone; two girls had to to to the bathroom before the end of the experimental session; and one girl and three boys quit and walked out of the room before the end of the experimental session.

Procedure

Half of the boys and girls in each condition had a male experimenter and half a female experimenter. The procedure is described for a male child and a male adult; the procedure was identical for male and female children, and male and female adults.

The experimenter took the children one at a time from the Child Development Lab classroom to the experimental room in the same building. The experimental room was about 14' x 14'. Around the side of the room were low open cupboards with toys in them, and toys sitting on top of them. On one of the cupboards was a small cardboard box with 300 marbles

in it. In the middle of the room was a table with toys on it. Also on the table was an 8" x 8" x 8" white wooden box with a hole in the top that was just large enough for one marble to drop through. The child was given the task of taking the marbles one at a time from the cardboard box and dropping them through the hole into the wooden box. The boxes were about six feet apart, requiring the child to take about three steps between them. This task was selected after some pretesting because it seemed to be a relatively meaningless task that a child could get bored with easily. It also had no appearance of a game (like previous marble-dropping games), nor any apparent inherent purpose (like picking up tennis balls off the floor).

Upon bringing the child into the experimental room, the experimenter spent about one minute talking with him and showing him some of the toys to help him relax. The experimenter then gave the child the following instructions:

> Here is a box of marbles. Over here is a white box. The white box has a hole in the top. The hole is just big enough to drop a marble through, like this (demonstrated). Now here is what I want you to do. I want you to take one marble out of this box and carry it over and drop it in the white box (demonstrated). Then come back and get one more marble and drop it in the white box (demonstrated). Then keep taking the marbles one at a time out of the box and dropping them through the hole in the white box. Now let me see if you can do that (child does it once). Good.

The above instructions were identical for all children in all conditions. The experimenter then continued with the following instructions, according to the experimental condition:

Condition 1--No-Threat, No-Surveillance

> Now I have to leave the room for a few minutes. While I am gone, I want you to keep putting the marbles from this box into the white box. Don't take more than one marble at a time. I'll be back in a few minutes. Keep doing what I told you to do until I get back.

Condition 2--No-Threat, Surveillance

> Now I have to sit over here and do some of my work for a few minutes. While I am doing my work, I want you to keep putting the marbles from this box into the white box. Don't take more than one marble at a time. I don't want you to talk to me because I have to concentrate. Just keep doing

what I told you to do until I finish my work, and don't talk to me until I get through.

Condition 3--Threat, No-Surveillance

Now I have to leave the room for a few minutes. While I am gone, I want you to keep putting the marbles from this box into the white box. Don't take more than one marble at a time. If you don't keep doing what I told you to do while I'm gone, I will be mad when I come back and something bad will happen. I will be back in a few minutes. Keep doing what I told you to do until I get back. Remember, if you don't keep doing what I told you to do while I am gone, I will be mad and something bad will happen when I come back.

Condition 4--Threat, Surveillance

Now I have to sit over here and do some of my work for a few minutes. While I am doing my work, I want you to keep putting the marbles from this box into the white box. Don't take more than one marble at a time. I don't want you to talk to me because I have to concentrate. If you don't keep doing what I told you to do until I get through with my work, I will be mad and something bad will happen. So just keep doing what I told you to do until I finish my work, and don't talk to me until I get through. Remember, I will be mad and something bad will happen if you don't keep doing what I told you to do.

After giving the child the appropriate instructions, the experimenter then left the room (Conditions 1 and 3), or sat on a chair in the corner of the room and read a book (Conditions 2 and 4) for 10 minutes. If the child made any attempt to talk to the experimenter in the two surveillance conditions the experimenter replied, "just keep working."

The behavior of the child was observed through a one-way window. One observer recorded the number of trips the child made, and the number of marbles carried on each trip, for each consecutive 2-minute period. The second observer recorded the amount of time the child spent working on the task vs. the amount of time spent in other activities such as playing with toys.

At the end of the 10-minute period, the experimenter returned to the room and said, "I'm sorry, I was gone longer than I thought I would be (Conditions 1 and 3), or closed his book, stood up, and said, "I'm sorry, it took me longer to do my work than I thought it would" (Conditions 2 and 4). In Conditions 3 and 4 he added, "so I'm not mad at you." He

then complimented the child on how many marbles he had carried, and took the child back to his classroom in the Child Development Laboratory.

Within one week after the child participated in the experiment, the child's regular classroom teacher asked him three questions as a measure of whether the child enjoyed the experiment: (1) "Do you remember the marble-dropping game you played upstairs a few days ago?", (2) Did you have fun up there?", and (3) "Would you like to play it again sometime?" The child's response of "yes" or "no" was recorded for each question.

Dependent Variables

Four measures of different aspects of the children's obedience were recorded: (a) How much work the child did--indicated by the total number of marbles the child carried; (b) how fast the child worked--indicated by the total number of trips the child made between the boxes; (c) how long the child worked--indicated by the amount of time the child spent working on the task during the 10-minute experimental session; and, (d) how compliant the child was to the request to carry only one marble at a time--indicated by the number of marbles carried by the child on each trip between the boxes.

Results

Preliminary analyses showed no differences between the male and female adults in their effects on the child's behavior. Each of the dependent variables was thus analyzed with a 2x2x2x4 analysis of variance (Threat x Surveillance x Subject Sex x Periods).

For number of marbles carried, there were no significant main effects, but there was a significant Threat x Sex x Periods interaction ($F=3.81$, $df=4/132$, $p<.01$). The nature of the interaction is shown in Figure 1.

Duncan's New Multiple Range Test (used for all post-hoc comparisons of means in this study) showed that the four means did not differ significantly during Period 1. However, the number of marbles carried by females in the no-threat condition increased significantly as time passed, so that during Periods 4 and 5 they were higher than all the other means. The number of marbles carried by females in the threat condition and males in both conditions did not change significantly over time (there was a tendency for males in the no-threat condition to carry fewer marbles as time passed, but the difference was not quite statistically significant).

For number of trips, the only significant main effect was for Periods ($F=6.16$, $df=4/132$, $p<.001$). The means for Periods 1 through 5, respectively, were 14.3, 14.5, 13.3, 13.0, and 12.6. The means for Periods 1 and 2 were significantly higher than the means for Periods 3, 4, and 5.

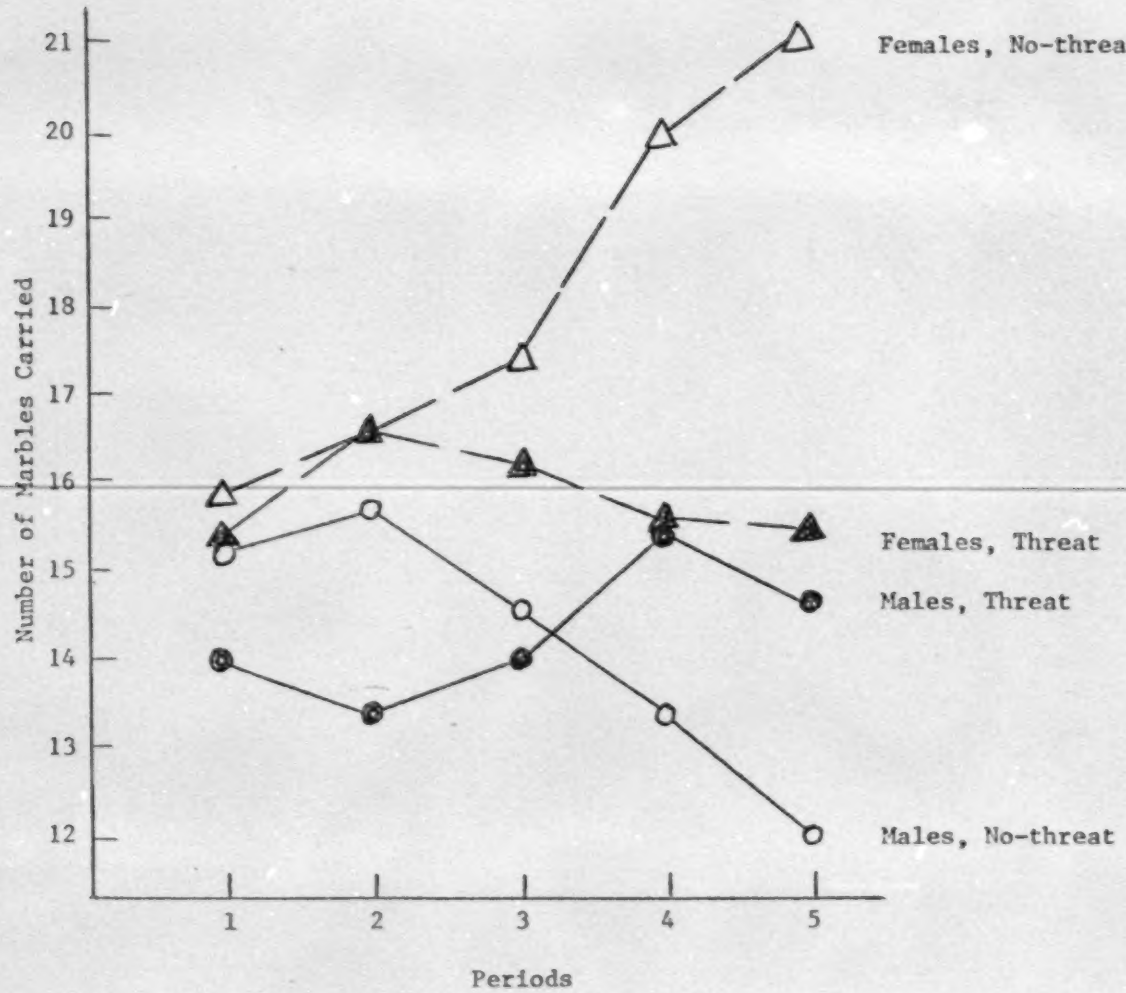

Figure 1. Mean number of marbles carried during each period by males and females in each threat condition.

There was also a slight Threat x Sex interaction ($F=3.73$, $df=1/32$, $p<.10$) for number of trips. Females tended to make more trips in the threat conditions than the no-threat conditions (15.8 vs. 12.2) while there was little difference between threat (13.5) and no-threat (12.8) for males.

The only significant main effect for marbles per trip was for Periods ($F=3.02$, $df=4/132$, $p<.05$). The mean number of marbles per trip for Periods 1 through 5, respectively, were 1.12, 1.19, 1.30, 1.52, and 1.48. The means for Periods 1 and 2 were significantly lower than for Period 4, and Period 1 was significantly lower than Period 5.

There was a significant Threat x Sex x Periods interaction for marbles per trip ($F=3.70$, $df=4/132$, $p<.01$), shown in Figure 2. The four means did not differ significantly during Period 1. However, females in the no-threat condition showed a significant increase in the number of marbles per trip as time passed. Females in the threat condition, and males in both conditions, did not change significantly with time.

There was also a slight Threat x Sex interaction ($F=3.08$, $df=1/32$, $p<.10$) for marbles per trip. Females tended to carry more marbles per trip under no-threat (2.0) than under threat (1.0) while there was little difference between no-threat (1.0) and threat (1.3) for males.

There was a statistically significant effect of Surveillance on distraction time ($F=4.74$, $F=1/32$, $p<.05$). The mean distraction time was 13.7 seconds when the adult stayed in the room and 61.4 seconds when the adult left the room.

Although distraction time under no-threat was almost three times greater than distraction time under threat (54.5 vs. 20.5) this difference was not statisdically significant, suggesting that there was a large variability between subjects in distraction time, which was indeed the case. Almost half (22) of the children had no distraction time at all, while several children had almost two minutes or more distraction time and one had over six minutes distraction time.

The responses of the children to the question concerning whether their participation in the experiment was fun were scored as 1 (yes) or 2 (no). The responses of the subjects to the question concerning whether they would like to do it again were also scored as 1 (yes) or 2 (no). The "fun" scores and the "again" scores were analyzed with 3-way (Threat x Surveillance x Subject Sex) analyses of variance. There were no significant effects.

Of the 48 children, 45 said that the experiment was fun. However, 16 said that they would <u>not</u> like to do it again. Only three children said

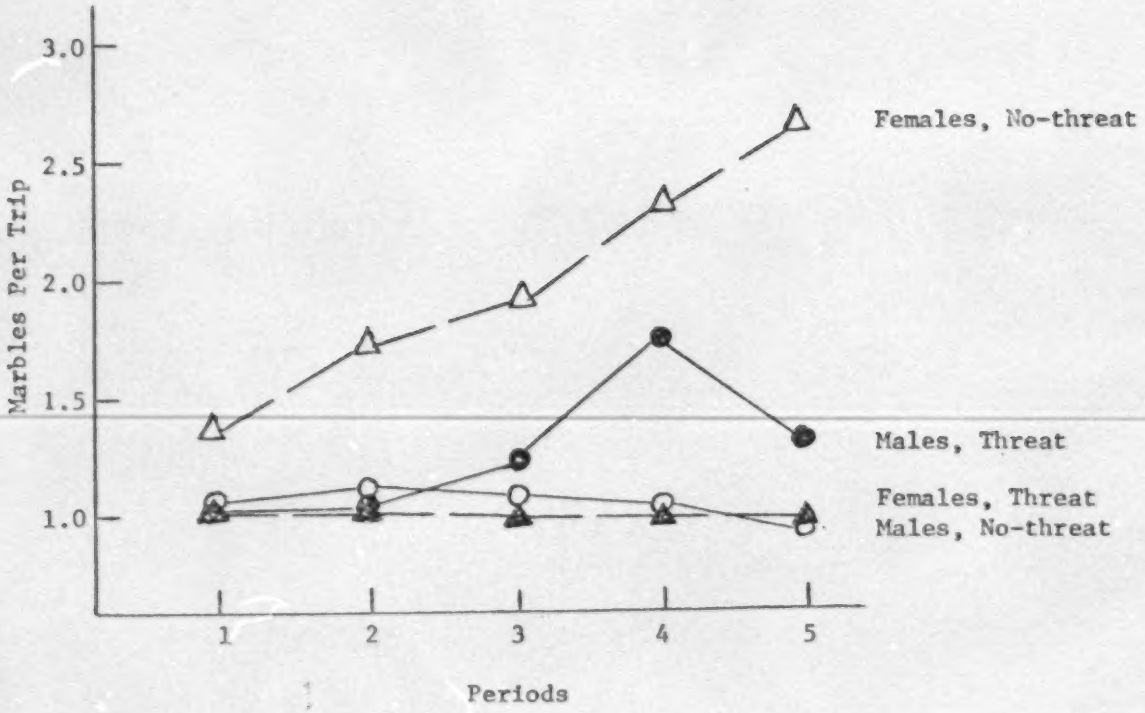

Figure 2. Mean number of marbles per trip during each period for males and females in each threat condition.

that it was not fun, and (as might be expected) all three said they would not like to do it again.

It has been noted that 11 of the original 59 children would not stay in the experimental room the full 10 minutes. Do these 11 children differ in any way from the children who did complete the experiment? Of course, no comparisons can be made in terms of any of the measures of obedience, since none of these children completed the task. But comparisons can be made on some other variables.

Of the 11 children who did not complete the experiment, four were males and seven were females. There was a striking relationship between failure to complete the experiment and experimental condition. Nine of the 11 children were from Conditions 1 and 3 (no-surveillance) with a male experimenter. All comparisons between children who did not complete the experiment (Dropouts) and children who did (Subjects) were made by comparing these 9 children with the 12 experimental subjects who were in Conditions 1 and 3 with a male experimenter.

There was no difference between Subjects and Dropouts in whether they thought the experiment was fun; all 12 Subjects and all 9 Dropouts responded "yes" to that question. There was also no significant difference between whether they would like to do it again; 8 of the 12 Subjects and 7 of the 9 Dropouts responded "yes" to that question.

Discussion

It has been noted that the results of this study may be comparable to research on resistance to temptation and on reinforcement in children, in the sense that these other studies also involve compliance with adult requests. The same variables used in these reinforcement studies should produce analogous results when obedience to adult requests (without any contingent approval) is used as a dependent measure, as was done in the present study (Carlsmith, et al., 1974). The main difference between the social reinforcement research and the present study is merely whether the adult delivers contingent approval after making the request.

Studies such as the present one are also very similar to studies on resistance to temptation--in a sense, they are merely opposite sides of the same coin. In both situations the child is left in a room with desirable toys. In the resistance-to-temptation research the adult tells the child not to touch the toys; the measure of obedience is the extent to which he resists the temptation to touch the toys. In the present study on obedience, the adult does not mention the toys, but tells the child to do something else. However, to obey, the child also must resist the temptation to play with the toys. If he plays with the toys, then in this research, as in the resistance-to-temptation research, he is not obedient. Thus both areas

of research involve obedience to an adult request in the face of temptation not to obey.

Because of the similarities between the present study on obedience and previous research on social reinforcement and resistance to temptation, the findings of research in those areas may be drawn upon to discuss the findings of this study.

Tests of Hypotheses

Four measures of obedience on the experimental task have been analyzed: (1) number of marbles carried, indicating amount of work done, (2) number of trips made, indicating rate of work, (3) number of marbles per trip, indicating compliance with the request to carry only one marble at a time, and (4) distraction time, indicating amount of time obedient.

Measures 1, 2, and 4 are similar to the dependent variables typically used in other studies on obedience (e.g., Carlsmith et al., 1974) and on social reinforcement (e.g., Parton & Ross, 1965). It may be noted that if every child had been obedient on measure 3, then measures 1 and 2 would be perfectly correlated. Stevenson (1961) dropped subjects from the study if they did not obey the instruction to take only one marble at a time, but in this study obedience to this instruction was recorded as a measure of obedience.

Hypotheses 1-3 were not supported by the main effects of any of the four measures. However, there were some interactions among the effects of some of the factors. The main effects will be discussed first, then the interaction will be discussed.

Hypothesis 1 said that children will be more obedient to the request of an adult when the request is accompanied by a threat than when it is not accompanied by a threat. There were no significant differences, for any of the measures of obedience, between the level of the children's obedience when the adult threatened the child vs. when the adult made the request without a threat. (As was noted, distraction time was only about 1/3 as long under threat as under no-threat, but the difference was not statistically significant due to the large variability in distraction-time scores.) This suggests that the use of a threat by a stranger on preschool children may not be too effective.

One possible reason why threat did not have a significant effect is that the threat was not strong enough, although it was intended to be a moderate-level threat, and was repeated twice in the instructions to make sure the child got it. It may have been wise to check on whether the children understood the threat by asking them afterwards what the

adult said would happen if they did not keep working. Using a similar check, Jensen and Buhanan (1974) eliminated the data of the children who did not understand the instruction.

The finding that threat did not make a significant difference is consistent with the results of forbidden-toy research. In those studies the threat level usually does not make a difference in obedience--all children in both mild- and severe-threat conditions typically do not touch the forbidden toy (e.g., Dembroski & Pennebaker, 1975; Lepper, 1973). However, when no threat was used in one study, then 10 of 12 boys and 5 of 12 girls touched the forbidden toys (Ward & Furchak, 1968), suggesting that some threat vs. no threat may affect compliance with the request not to play with a toy.

The findings of Carlsmith et al. (1974) that anxious children respond more to a negative adult than a positive adult suggest one possible reason why threat did not have an effect. Threat likely arouses some anxiety in the child, but both of the experimenters interacted with the children in a positive, nurturant manner (cf. Parke, 1967; Saadatmand, Jensen, & Price, 1970). Thus, to the extent that the children were made anxious by the threat, they may have been less responsive to the experimenters than they would have been if the experimenters had been more negative.

Hypothesis 2 said that children will be more obedient to the request of an adult when they are under surveillance by the adult than when they are not under surveillance. It may seem rather obvious that a child will be more obedient if you are watching him than if you leave him alone. In fact, most parents and teachers predicted that the children would be most obedient in the no-threat, surveillance condition. However, there were no significant differences, for any of the first three measures of obedience, between when the adult stayed in the room and when the adult left the room.

There was a significant effect of surveillance on distraction time. When the adult stayed in the room the children had a mean distraction time of only about 14 seconds out of 10 minutes, but when the adult left the room their mean distraction time was more than four times as great (61 seconds). These results suggest that surveillance had some effect on how long the children worked on the task, even if it may not have significantly affected how much work they did.

One possible reason that surveillance did not have more effect is that the children in the no-surveillance conditions may have known that they were being watched through the one-way mirror. Although this is possible, it is doubtful; only two children paid any attention to the mirror, and that was just to make faces in it (at themselves, I assume). Another possible reason is that the children may have felt that they were

under some kind of surveillance even when the adult was out of the room, because the adult would eventually come back and find out how much they had been working (cf., Biaggio & Rodrigues, 1971). Surveillance as defined in the first section of this paper exists whenever the influence agent is likely to find out about the individual's actions. Perhaps a study in which the adult never finds out whether the child obeyed would shed additional light.

Two studies comparing the presence and absence of an adult on response rate by young children in marble-dropping tasks found that the children responded faster when the adult was present. However, in the "present" condition the adult sat facing the child watching him; and in the "absent" condition the adult still remained in the room. The "absent" adult either sat in a corner of the room busying himself with another task (Leventhal & Fischer, 1970), or sat behind a screen in the same room with the child (Meddock et al., 1971). The first of these "absent" conditions is the same as "surveillance" in the present study.

Future studies might clarify the effects of surveillance by including other levels of surveillance. For example, surveillance could be varied from very high to very low in the following gradations: (1) the adult sits facing the child watching his every move; (2) the adult sits away from the child and busies himself with another task ("surveillance" in this study); (3) the adult sits behind a screen in the same room; (4) the adult leaves the room ("no-surveillance" in this study); (5) the adult leaves the room and has the child lock the door so he cannot return unexpectedly (as done by Burton, Allinsmith, & Maccoby, 1966); (6) the adult leaves the room, has the child lock the door, and never comes back (another adult comes back to terminate the session).

One reason there was no main effect of surveillance or threat for number of marbles per trip may be that 2/3 of the children in the experiment completely obeyed the request--32 children never carried more than one marble on any trip. The children who did carry more than one marble on any trip may have done so for one of several possible reasons: (1) it gave some variety to a dull task, (2) they were in a hurry to finish, (3) they did not understand the request to carry only one at a time, or (4) they were negativistic. Unfortunately there is no data available to determine which of these reasons is most likely.

Hypothesis 3 said that there will be an interaction between threat and surveillance; the difference between threat vs. no-threat will be greater under surveillance than under no-surveillance. There were no significant Threat x Surveillance interactions for any of the four measures of obedience. This indicates that the effectiveness of threat in this task did not depend on surveillance.

Hypothesis 4 said that children will be most obedient immediately following the adult's request, then their obedience will decrease as time passes. There was a significant Periods effect for number of trips and for number of marbles per trip. On both of these measures, the trend was for the children to start out obeying and to become less obedient as time passed. The number of trips per 2-minute period decreased during the 10-minute period, and the number of marbles per trip increased. Because the children were making fewer trips and carrying more marbles per trip, we would expect the number of marbles carried to remain fairly constant. This was the case--there was no Periods effect for number of marbles carried.

Thus, the inclusion of time as a variable in this study has indicated that there is a tendency for children to decrease their obedience as time passes. This conclusion is inconsistent with the finding in reinforcement studies that there is a gradual increase in response rate even without reinforcement (Leventhal & Fischer, 1970; Parton & Ross, 1965). Also, in a study of 5-year-old children's obedience to requests made by their mothers to play with certain toys, more disobedience occurred immediately following the request than later in a 3-minute period (Forehand & Scarboro, 1975).

Interactions

Although most of the main effects relevant to the hypotheses were not significant, there were some interesting interactions which provide support for some of the hypotheses.

There was a slight interaction between threat and child sex for number of trips. Boys made about the same number of trips in the threat condition as in the no-threat condition. Girls made about the same number of trips as boys in the no-threat condition, but made considerably more trips in the threat condition. This suggests that threat increased the number of trips for girls but not for boys.

There was also a slight interaction between threat and child sex for number of marbles per trip. Boys carried about the same number of marbles per trip in the threat condition as in the no-threat condition. However, girls were again affected by threat; they carried considerably more marbles per trip in the no-threat condition than in the threat condition.

The results of these two interactions between threat and child sex indicate that threat increased obedience for girls but not for boys. Threat caused girls to make more trips and to carry fewer marbles per trip.

There was a significant interaction among threat, child sex, and periods for total number of marbles carried. There were no significant differences between either sex in either threat condition during the first 2-minute period. However, by the last period, girls in the no-threat condition were carrying more marbles than girls in the threat condition, and more than boys in either condition. Girls in the no-threat condition showed a significant tendency to increase the number of marbles carried as time passed; in the threat condition the number of marbles carried started at about the same level as in the no-threat condition but remained quite constant during the 10 minutes. Boys were similar to girls in the threat condition in that the number of marbles carried remained fairly constant. However, they were just the opposite from girls in the no-threat condition; the number of marbles carried showed just a slight tendency to decrease as time passed.

This analysis indicates that girls became more obedient as time passed, in terms of number of marbles carried, when there was no threat than when there was a threat. This suggests that they worked harder when there was no threat, a somewhat puzzling finding. However, the interaction for number of marbles per trip sheds additional light on the effect of threat on the girls' obedience.

The interaction for number of marbles per trip parallels the interaction for number of marbles carried. During the first period there were no significant differences between either sex in either threat condition. However, by the last period girls in the no-threat condition were carrying more marbles per trip than girls in the threat condition, and more than boys in either condition. Girls in the no-threat condition showed a constant increase in marbles per trip as time passed. Girls in the threat condition showed no change at all as time passed; boys in both threat conditions also remained fairly constant during the five periods.

Thus an analysis of these two interactions together indicates that threat had a significant effect on the obedience of girls over time, but not on the obedience of boys. Girls who were not threatened became less and less obedient to the request to carry only one marble at a time. This accounted for both their increase in number of marbles carried per trip and their increase in total number of marbles carried.

Enjoyment of the Experiment

The fact that almost all of the children (94%) indicated that the experiment was fun may lead one to expect that they would like to participate again. This is why it is somewhat surprising that more than a third of the children who indicated that the experiment was fun also indicated that they would not like to participate again. This finding suggests several

possibilities: (1) Children were not telling the truth when they said it was fun; they may have told their teacher it was fun because that is what they thought she wanted them to say. (2) It was fun, but not as fun as staying in class. (3) There was some other variable besides fun that determined whether they would like to do it again. (4) The experience as a whole may have been fun without the task being fun; that is, the experience may have been fun in spite of rather than because of the task.

If the children really did enjoy the experimental task, then this suggests that the attempt to use a dull, boring task was not successful. There was some observed behavior that indicated the task was dull for at least some of the children. Seven children either talked to themselves or signed clearly audible signs. The talk did not seem to be directed at anyone. The children who talked to themselves said that they were getting tired, and the sighs of the other children also indicated that fact. One boy even sat down on the floor and said that he was tired of playing. One girl apparently attempted to add some variety to the task by selecting out white marbles only.

I had expected that the children would enjoy working on a task more for a non-threatening adult than for a threatening adult; and more when they were not left alone in a strange room than when they were left alone. This would be true especially if threat and isolation were anxiety-provoking situations (cf., Walters & Ray, 1960). However, the finding that neither threat or surveillance had any significant effect on "fun" or "again" does not support this expection.

Summary

In summary, the results of this study indicated that: (1) In general, the children were very obedient; (2) threat increased obedience in girls but not in boys; (3) surveillance increased the amount of time the children worked on the task; (4) obedience decreased with time; and (5) although 94% of the children indicated that the experiment was fun, a third of them indicated they would not like to do it again.

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